

**TCT-389****Temporary Pacemaker Placement Incidence with the Diamondback 360® Coronary Orbital Atherectomy System Compared to Rotational Atherectomy**

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**BACKGROUND** Transvenous temporary pacing is often used during percutaneous coronary intervention (PCI) in patients undergoing rotational atherectomy (RA) and is recommended for prophylactic use in all cases involving the RCA. The placement of transvenous pacing has cost implications as well as associated procedural risk, including cardiac tamponade. Diamondback 360® Coronary Orbital Atherectomy System (OAS) is a new device, used to treat de novo severely calcified coronary lesions in place of rotational atherectomy. The unique mechanism of OAS may contribute to decreased incidence of bradycardia and heart block. It has not been previously reported in the literature the incidence of temporary pacemaker placement during OAS versus RA. The objective of this study is to identify if there is a difference in placement of temporary transvenous pacemaker's during PCI with OAS compared with RA in a real world setting.

**METHODS** A multi-center retrospective analysis was completed on all PCI cases that took place at St. Francis Hospital in NY and Metropolitan Heart and Vascular Institute in Minnesota, between January 1, 2012 and May 11, 2015, using either OAS or RA. We assessed the number of cases in which temporary transvenous pacemakers were placed. Statistical analysis was performed using the Chi-square test.

**RESULTS** There were 340 cases utilizing OAS, of which 12 cases had a temporary pacemaker placed (3.5%), with 3 cases requiring activation of pacing (0.9%). During orbital atherectomy, 8 of the pacemakers were for RCA cases, 2 for LCX and 2 for LAD. There were 156 rotational atherectomy cases, with 16 pacemakers placed (10.3%), with 5 cases requiring activation of pacing (3.2%). 15 of the pacemakers placed with RA were for RCA cases, and 1 was placed after a LAD perforation. Temporary pacemakers were placed significantly less for OAS cases as compared with RA cases (p-value = 0.003). Pacemaker activation showed a strong trend of lower activation in the OAS arm (p-value = 0.057).

**CONCLUSIONS** This is the first analysis that assessed the placement of temporary pacing for OAS. In a real world setting, temporary pacemakers were placed significantly less for OAS cases as compared to RA cases.

**CATEGORIES CORONARY:** Atherectomy (excluding thrombectomy)

**KEYWORDS** Atherectomy, Calcified lesions, PCI - Percutaneous Coronary Intervention

**TCT-390****Can True Bifurcation Really be Regarded as a Risk Factor of Side Branch Occlusion after Main Vessel Stenting? A Retrospective Analysis of 1200 Consecutive Bifurcation Lesions in a Single Center**

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**BACKGROUND** True bifurcation lesion (TBL) is usually considered as a risk factor of side branch (SB) occlusion when using single stent/provisional 2-stent strategy to treat coronary bifurcation, although there is still no adequate evidence. In the present study, we sought to clarify this issue.

**METHODS** A total of 1170 consecutive patients with 1200 bifurcation lesions undergoing one stent or provisional two stent techniques were studied. The lesions were divided into non-TBL and TBL group (Medina 1,1,1; 1,0,1; and 0,1,1 were defined as TBL). The incidence of SB occlusion was analyzed. Multivariate logistic regression analysis was performed to identify independent predictors of SB occlusion. We also compared the diameter stenosis of TBL before and after pre-dilation to analysis how pre-dilation affect the stenosis severity changing of TBL. The TBL group was then divided into 3 subgroups according to the median of the most severe diameter stenosis in MV and the median of diameter stenosis in SB after pre-dilatation: group I (diameter stenosis of both MV and SB < median), group II (only diameter stenosis of MV ≥ median or only diameter stenosis of SB ≥ median), and group III (diameter stenosis of both MV and SB ≥ median). We compared the incidence of SB occlusion in these 3 groups.

**RESULTS** Although the incidence of SB occlusion in TBL group (14.0%, 42 of 301 lesions) was higher than that in non-TBL group (5.1%, 46 of 899 lesions) (p<0.01), multivariate logistic regression analysis showed that TBL was not independently predictive of SB occlusion. High bifurcation angle, plaque located at the same side of SB, MV TIMI flow grade before stenting, pre-procedural diameter stenosis of bifurcation core, diameter ratio between MV/SB, diameter stenosis of SB before MV stenting were independent predictors of SB occlusion. Pre-dilatation leads to significantly decrease in the diameter stenosis of proximal MV, SB, bifurcation core, and distal MV (Table 1). After pre-dilation, the median of the most severe diameter stenosis in MV was 52.7% and the median of diameter stenosis in SB was 46.7%. As for the 3 subgroups of TBL, the incidence of SB occlusion in group I (7.4%) were significantly lower than group II (13.0%) and group III (22.0%) (p=0.025). There is no significant difference in the incidence of SB occlusion between group I (7.4%) and non-TBL group (5.1%) (p=0.53).

**Table 1.** Pre-dilatation leads to significantly decrease in the diameter stenosis of TBL

	Baseline diameter stenosis (%)	Diameter stenosis after pre-dilation (%)	p
Proximal MV	58.15 ± 26.13	43.17 ± 18.93	p <0.01
Bifurcation core	46.25 ± 28.02	32.83 ± 21.02	p <0.01
Distal MV	55.46 ± 23.89	42.70 ± 18.00	p <0.01
The most severe diameter stenosis of MV	73.37 ± 16.68	52.42 ± 15.30	p <0.01
Side branch	53.65 ± 19.33	45.26 ± 21.49	p <0.01

Values presented as mean ± standard deviation.

MV = main vessel.

**CONCLUSIONS** TBL cannot be regarded as an independent predictor of SB occlusion after MV stenting, unless considering the stenosis severity changing after pre-dilation in MV and SB.

**CATEGORIES CORONARY:** Complications

**KEYWORDS** Bifurcation stenting, Side branch occlusion

**TCT-391****Impact of heterogeneity of human peripheral blood monocyte subsets on collateral vessel development in patients with coronary chronic total occlusion**

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**BACKGROUND** Monocytes, the most abundant immune cell type found in atherosclerotic plaques, play important roles in inflammation, angiogenesis and tissue repair. Previous studies showed the association between distinct monocyte subsets and cardiovascular events. Here, we aimed to investigate the relationship between the distinct human monocyte subsets and coronary collateral circulation (CCC) in patients with chronic total occlusion (CTO).

**METHODS** A total of 184 patients with CTO were included. Peripheral blood sampling was performed after the coronary angiography was finished. Three monocyte subsets, classical CD14++CD16-, intermediate CD14++CD16+, and nonclassical CD14+CD16++ monocytes were analyzed by flow cytometry. Cohen-Rentrop method was used to evaluate coronary collateral artery grading by two independent investigators. Disagreements were resolved via consensus. Patients with grade 0-1 collateral development were regarded as the poor collateral group, and patients with grade 2-3 collateral development were regarded as the good collateral group. Clinical information were obtained from a review of the patients' charts.

**RESULTS** There was no difference between the two groups with respect to traditional cardiovascular risk factors. CD14++CD16- monocyte subset (p=0.006) counts were significantly higher in patients with poor CCC, whereas neither the CD14++CD16+ (p=0.012) nor the CD14+CD16++ (p=0.032) subset counts differed significantly between the two groups. In a multivariate logistic regression model, the level of CD14++CD16- monocytes remained an independent factor for the presence of poor CCC (odds ratio 2.04, 95% confidence interval: 1.19-3.45; p=0.01).

**CONCLUSIONS** CD14++CD16- monocytes independently estimate the development collateral vessel in patients with CTO, which indicates that modulation CD14++CD16- monocytes could be a potential target for CTO treatment.

**CATEGORIES CORONARY:** Cell Therapy and Angiogenesis

**KEYWORDS** Chronic total occlusion, Coronary collateral artery